

## Ch:3

### DSS?

- ↳ systems designed to support managerial decision-making in unstructured problems.
- ↳ support solutions or evaluate opportunities.
- ↳ methodology that supports decision-making.

### DSS is

flexible, Adaptive, interactive, Employs modeling, GUI-based.

### Components of DSS

\* subsystems.

- a) Data management (managed by DBMs)
- b) Model management (managed by MBMs)
- c) user interface
- d) Knowledge management and organizational Knowledge base.

## a) Data management Subsystem

### \* Components

Database, Query Facility, Database management System, Data dictionary.

#### 1. Database:

- ↳ interrelated data extracted from various sources, stored for use by the organization, and queried.
- ↳ Private data or guidelines used by decision-makers.
- ↳ internal data, from TPS.
- ↳ external data from government agencies, market search firms.

#### 2. Database management system:

- ↳ extracts data.
- ↳ manage data and their relationships.
- ↳ updates (add, delete, change)
- ↳ Retrieves data
- ↳ employs data dictionary.
- ↳ manipulates data.



## C- Data dictionary

↳ Catalog of all data

↳ Contains data definitions.

↳ Answer questions about availability of data items such as (meaning of data, source of data)

↳ Allows for additions.

## Model management system

### Components

Model base, Modeling language, Model directory, Model base management system (MBMS), Model execution.

### Models

#### \* Strategic

↳ Supports top management decisions.

#### \* Tactical

↳ Used primarily by middle management to control and allocate resources

#### \* Operational

↳ Supports daily work activities.

#### \* Analytical

↳ Used to perform analysis of data.

# Model Base management System

## \* Functions

- a) model creation.
- b) model data manipulation.
- c) model updates.
- d) Generation of new routines.

## Model directory

- a) Catalog of models.
- b) Contain model definition and its function.

## Model Execution

↳ controls running of model.

## ⇒ Model Command Processor

- ↳ receives model instructions from user interface.
- ↳ Routes instructions to MBMS.

## ⇒ Model integration

- ↳ combines several models' operations.

## user interface management subsystems (UIMS)

- \* GUI
- \* Natural language Processor.
- \* interacts with model management and data management subsystems.

## \* Examples

- \* Speech recognition.
- \* Display Panel.



## UIMS Capabilities

- a) Provides graphical user interface.
- b) Accommodates the user with variety of I/P devices.
- c) Presents data with a variety of formats and O/P " .
- d) Provides interactions with database and model base.
- e) stores I/P and O/P data.
- f) Provides color graphics, 3-d graphics .

## Knowledge-Based management system

- unstructured & semi structured Problems need <sup>expertise</sup> ~~an expert~~.
- this can be provided by expert system.
- Knowledge-based management system <sup>is</sup> ~~are~~ component can supply required expertise for solving aspects of problem and enhance operation of DSS.

## DSS Hardware

- De Facto standard hardware.
- web server with DBMS:
  - a) operates using browser.
  - b) Data stored in variety of databases.
  - c) Access for mobile devices.



## DSS classifications

### 1) Alter

- \* the extent to which outputs can directly support or determine the decision.
- \* Data oriented or model oriented.

### 2) Holsapple and Whinston

- \* (Text, database, spreadsheet, solver, rule) oriented or compound.

### a) Text-oriented DSS

- information stored in text format accessed by decision makers.
- It supports decision-maker by electronically keep track of text which contain information.
- Web-based document, hypertext be incorporated into text-oriented.

### b) Database-oriented DSS

- Database plays major role in DSS structure.
- It features strong report generation and query capabilities.

### c) Spreadsheet-oriented DSS

↳ It is modeling system allows user to develop model to execute DSS analysis.

→ Microsoft-Excel is most popular tool for developing DSS, it has models like (linear programming model "solver")

→ Some spreadsheet <sup>tools</sup> include what-if analysis or goal-seeking capabilities.

→ It is a ~~special~~ special case of solver-oriented DSS.

### d) Solver-oriented DSS

→ algorithm written as computer program to make computations to solve particular problem.

→ It can be commercially programmed in ~~several~~ development sw. For ex: (Excel has several solver functions)

→ Solver can be written in programming language such as C++.



## other DSS classifications

### \* Donovan and Madnick

→ Institutional DSS : supports Problems for recurring nature (repetitive)

→ Ad hoc DSS : supports Problems that are not repetitive.

### \* Hackath<sup>or</sup>on and Keen

- Personal DSS.
- Group DSS.
- organizational DSS.

### \* GSS vs Individual DSS

↳ Decision made by by entire group or individual decision maker.

### \* Custom made vs vendor ready made

→ Many DSS are custom-made for individual user and organizations.

→ Generic DSS (ready made) may be modified for use:

- ↳ it reduces costs.
- ↳ Addresses repeatable industry Problems.



## Web and DSS

- web used for collecting external & internal data for DSS database.
  - web can be use for communication between DSS builders, ~~users~~, users and management.
  - web used to download DSS sw, use DSS apps.
  - standard DSS interface is now web browser.
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